

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Patent Application No. 10/520,080

Applicant: Abdoulaye DOUCOURE et al.

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Commissioner for Patents
U.S. Patent and Trademark Office
Randolph Building
401 Dulany Street
Alexandria, VA 22314

DECLARATION UNDER 37 CFR §1.132 OF ABDOULAYE DOUCOURÉ, PH.D.

Dear Sir:

I, Abdoulaye Doucouré, hereby declare that:

1. I am presently employed by Pall Corporation, East Hills, NY, as a Senior Principal Research and Development Scientist. I have been employed by Pall Corporation since 1998, starting as a Project Manager in the Research and Development Department, and subsequently occupying several positions within the membrane research groups at Pall Corporation, including head of Pall Life Sciences New Media Technology. Including my doctoral and post-doctoral studies, I have over 15 years of experience in the areas of membrane and thin film technology.
2. I received a Ph.D. from the University of Montpellier II in Materials Chemistry from the Laboratory of Materials and Membranes (currently, the Institut Européen des Membranes) in 1995. I received a Diplôme d'Etudes Approfondies (M.S.), Concentration, Polymers,

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Interface and Amorphous States, from the University of Montpellier II in 1991, and a Maitrise de Chimie (B.S.) in Chemistry from the University of Montpellier II in 1990.

3. I conducted post-doctoral research at ELF ATOCHEM North America from 1996 to 1997 particularly with respect to preparation of fluoropolymers and polymer blends for paints and architectural coatings.

4. I am a Co-founder of the Mali Symposium on Applied Sciences, and I have authored, or co-authored, several publications relating to membrane technology. I have given numerous presentations relating to membrane and coating technology and characterization.

5. I am one of the inventors listed in U.S. Patent Application entitled "UV Treated Membranes," that I understand was given application number 10/520,080. I will refer to this U.S. Patent Application as "the Application" below.

6. I have reviewed the application, as well as an Office Action mailed in the Application on January 24, 2008, and I have also reviewed the U.S. Patents referred to in the Office Action.

7. The Office Action states with respect to U.S. Patent No. 5,811,251 to Hirose et al. (hereinafter referred to as "Hirose et al.") and referring to col. 3, line 49 through col. 4, line 42, and Example 8, that it describes two embodiments, "one is starting with hydrophilic PTFE membrane and making hydrophobic patterns on it; the other is starting with hydrophobic PTFE and then making hydrophilic patterns. Both of these embodiments anticipate the claims. The later embodiment is produced by treatment with UV light after impregnating with hydrophilizing [*sic*] agents—see example 8."

8. Hirose et al. does not refer to any of the following with respect to the two embodiments: the critical wetting surface tension (CWST), the wetting/dewetting ratio, the fluorine/carbon (F/C) ratio or the oxygen/carbon (O/C) ratio.

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9. Based upon my experience, even assuming that the reference to "hydrophilic" PTFE (Hirose et al. col. 3, lines 54-55) refers to a membrane that was not surface modified with a cross-linked coating, I believe that reference to "hydrophilic" refers to either a PTFE membrane that has been pre-wetted with a low surface tension fluid, e.g., an alcohol, or refers to a PTFE membrane that was irradiated with an electron beam or gamma rays. Based upon my knowledge, a PTFE membrane pre-wetted with an alcohol, or irradiated with an electron beam or gamma rays, will not have, for example, surfaces having both an F/C ratio of about 1.2 or more and an O/C ratio in the range of from about 0.01 to about 0.15.
10. With respect to the other embodiment described in Hirose et al., under my supervision, two PTFE membranes were prepared as described in Example 8 of Hirose et al. (that referred to following the procedure described in Example 34 in U.S. Patent 4,618,533). The resultant coated membranes were analyzed with respect to the F/C and O/C ratios. The first membrane had an F/C ratio of 1.03 and an O/C ratio of .29, and the second membrane had an F/C ratio of .83 and an O/C ratio of .28.
11. The Office Action states with respect to U.S. Patent 5,198,505 to Sipsas et al. (hereinafter referred to as "Sipsas et al.") that Sipsas et al. teaches hydrophilizing PVdF membranes by heating, or heating following by hydrophilizing.
12. Sipsas does not teach that heat treatment contributes toward making the PVDF membrane hydrophilic. Rather, as set forth in Sipsas, e.g., col. 2, lines 42-50 ("it is believed that heating the hydrophobic membrane *before hydrophilization* alters the crystallinity of the polymer making up the membrane" (emphasis added)); col. 3, lines 13-15 (referring to heating a membrane "for a time sufficient to achieve a state such that, when *subsequently hydrophilized*, the resultant hydrophilized membrane has substantially uniform hydrophilic properties" (emphasis added)), and col. 3, lines 59-60 (referring to heating a membrane for a sufficient time such that all sections of the membrane come to the same temperature, so that "the resultant membrane can be hydrophilized by known means"), Sipsas emphasizes that heating before a *separate* hydrophilic treatment alters the crystallinity of the PVDF membrane. The membrane disclosed by Sipsas must be made hydrophilic by another process, i.e., not by the heat treatment.

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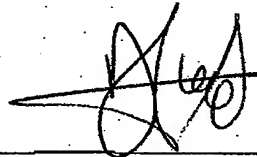
13. The Office Action also states that Sipsas et al.'s teaching of a PVdF hydrophilic membrane would make the claims obvious "because PTFE is expected to behave similarly to PVdF (MPEP 2144.09)."

14. Since, for example, PTFE and PVDF membranes have different backbones, and, for example, different melting points (m.p. PTFE = 330 ° C; m.p. PVDF = 145 ° C) and different stabilities in sodium hydroxide (PTFE is stable when immersed in NaOH, PVDF is not) I do not understand what the Office Action means by the statement that "PTFE is expected to behave similarly to PVdF."

15. I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true, and further than these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code, and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

07/21/2008

Date



Abdoulaye Doucouré, Ph.D.